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CRUISE REPORT

R/V COLUMBUS ISELIN [CI 7-78-2]

8 Sept. - 27 Sept. 78

John M. Aaron
U. S. Geological Survey
Woods Hole, MA 02543

2 November 1978

CRUISE REPORT R/V COLUMBUS ISELIN [CI 7-78-2] 8 Sept. - 27 Sept. 1978

1. Ship Name : R/V COLUMBUS ISELIN

2. Cruise Number : CI 7-78-2 (Cruise 7-78, leg 2)

3. Project Area : North Atlantic OCS Environmental Assessment (Bureau of Land Management)

4. Area of Operations: North Atlantic Outer Continental Shelf and Continental Slope (40^{o}N to 42^{o}N)

5. Dates and Ports : Leave Woods Hole, MA 1545 EDT 8 Sept.
Arrive Woods Hole, MA 1300 EDT 27 Sept.
Emergency Port Call, Woods Hole, MA 0800-1600 EDT 16 Sept.

6. Scientific Party :

John M. Aaron	Chief Scientist, USGS, Woods Hole, MA
Richard E. Sylwester	USGS, Woods Hole, MA
Alan Goodman	USGS, Woods Hole, MA
Thomas C. Aldrich	USGS, Woods Hole, MA
Charles J. McCreery	USGS, Woods Hole, MA
John Hampson	USGS, Woods Hole, MA
Sandra Conley	USGS, Woods Hole, MA
Kathy Kent	USGS, Woods Hole, MA
James Sullivan	USGS, Woods Hole, MA
Cecelia Gary	USGS, Reston, VA
Dale Mihalyi	USGS, Corpus Christi, TX
Robert Morgan	Master, R/V COLUMBUS ISELIN

7. Purpose of Cruise: To determine location and frequency of mass sediment movement and other geological hazards on the North Atlantic Continental Slope (Georges Bank area), using high resolution geophysical methods.

8. Navigation Techniques: Loran-C (Northstar 6000) fixes manually plotted and recorded at 15 minute intervals, and automatically recorded at 5 minute intervals.

9. Scientific Equipment :

a. Northstar 6000 loran receiver (9930 rate)
b. IMSAI 8080 microprocessor time base
c. Texas Instruments Silent 700 tape and paper recorder (navigation)
d. 40 cubic inch airgun
e. 5 cubic inch airgun
f. Teledyne 600 joule minisparker
g. ORE 3.5 kHz tuned transducer
h. EPC recorders w/hydrophones and amplifiers
i. 7-channel analog tape recorder (seismic w/time base)

10. Tabulated Information:

a. Days at Sea : 18

b. Amount of Data:

3.5 kHz	218 km
Minisparker	2,669 km
airgun	2,142 km

11. Narrative:

All times are in Eastern Daylight Time (EDT).

8 Sept.	1545	Depart Woods Hole, proceed directly to survey area.
9 Sept.	0135	Deploy 3 seismic systems.
	0430	Recover seismic gear snared in lobster pots; hydrophone array fouled in ship's port screw. No apparent damage to screw.
	0600	Deploy seismic gear, resume survey.
	1125	Recover seismic gear in rough seas; ride out storm.
10 Sept.	1430	Deploy seismic gear in calmer seas
11-14 Sept.		Run seismic lines, no problems.
15 Sept.	1422	First mate very ill, in need of onshore medical attention. Recover seismic gear, steam toward Woods Hole. First mate removed in route by Coast Guard helicopter.
16 Sept.	0800	Arrive Woods Hole, take on additional crewman to replace mate.
	1600	Depart Woods Hole, return to survey area.
17 Sept.	1100	Arrive survey area, continue seismic survey at point of interruption.
18-20 Sept.		Continue seismic survey.
21 Sept.	2000	Fishermen in area near shelf edge advise that surface longline arrays are deployed in ISELIN path. Lines reportedly extend from present position 150 km northeast to Northeast Channel. Fishermen (at least 3 boats)

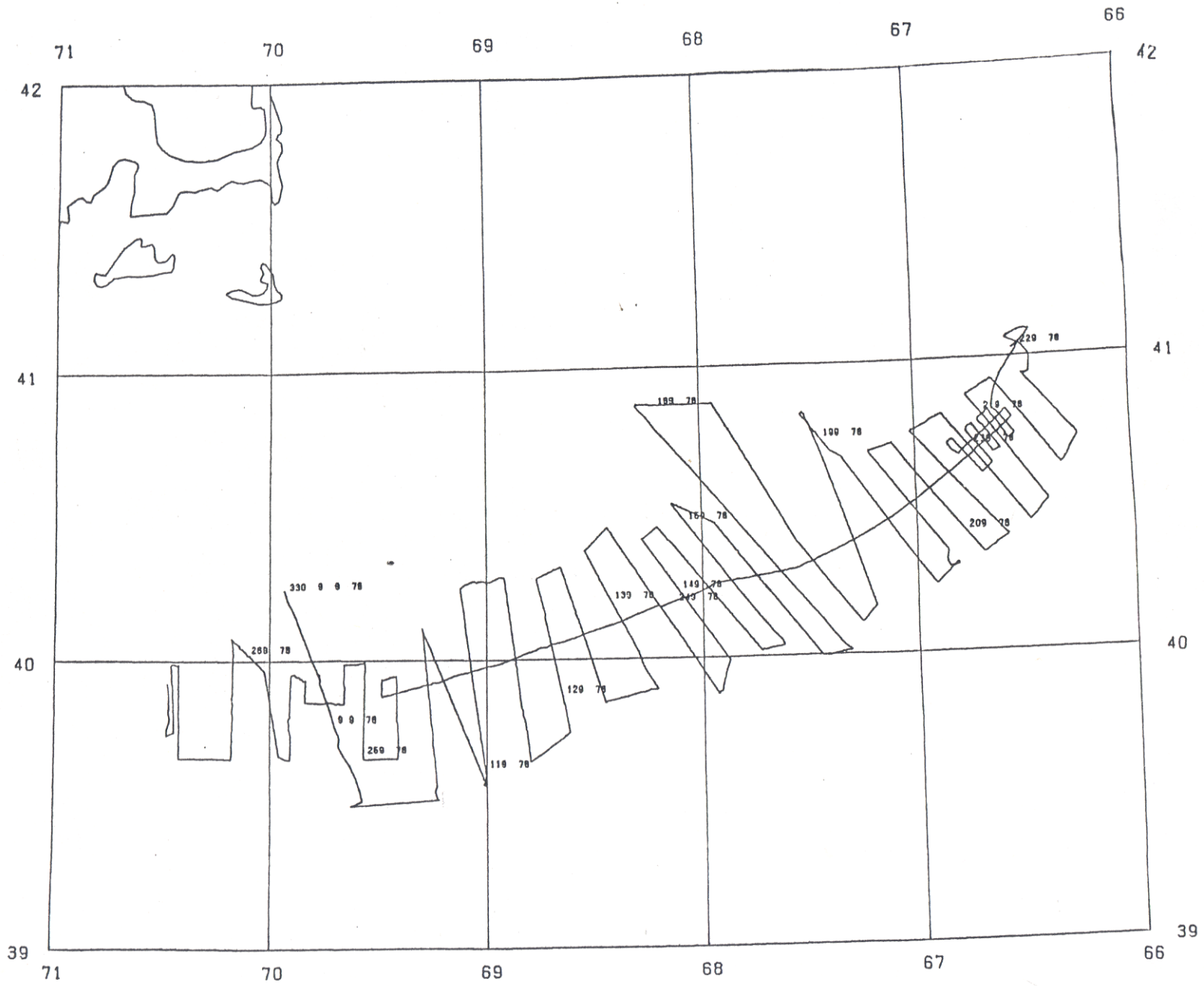
		threaten dire consequences if ISELIN proceeds and interferes with lines. Spend night waiting for morning communication with Woods Hole.
22 Sept.	0900	Return to area of lines 27 and 28
22 Sept.	1100	Deploy seismic gear and begin high density survey of possible slumped area to try to correlate features seen in previous lines 7 and 8, and to try to get a 3-dimensional picture of the possible slump body.
23 Sept.	1530	Terminate detailed study; begin strike line southwestward parallel to shelf edge.
		Continue strike line.
24 Sept.	2315	Terminate strike line; begin series of dip lines to cover area missed during storm of 9 Sept., and to extend line coverage to southwest toward Atlantis Canyon.
25 Sept.		Continue survey toward Atlantis Canyon.
26 Sept.	2200	Begin high density (1 nm line space) survey of slumped area west of Atlantis Canyon.
27 Sept.	0345	Terminate seismic survey, recover and secure all equipment, proceed to Woods Hole.
	1300	Arrive Woods Hole.

Initial Impression of Results:

Overall, the data quality is excellent, with good resolution and penetration. Some areas of rough topography obscured the underlying structure.

The records show that slumping and other mass sediment movements have occurred at several places on the continental slope adjacent to Georges Bank. Slumping occurs in scales that range from small to large, and in styles that range from simple downslope creep to major dislocation. Most slump bodies are found near the base of the slope with marked erosional truncations above.

Records obtained from the edge of the continental shelf show numerous buried channels of varying size and configuration. Inside the 60 m isobath extensive fields of large sand waves are present.



R V ISELIN 2 1 1750000 UTM CM 69 NOV 9 1978 TIME GMT

TRACKLINE CHART